

Graceland Park O'Donnell Heights and Holabird Elementary/Middle Schools

UDARP PRESENTATION 1 – MARCH 24TH









Introduction

21st Century School Buildings Program

The Baltimore City Public School System (City Schools) Construction and Revitalization Act of 2013 resulted in a partnership between:

- The State of Maryland
- Baltimore City
- City Schools

Approximate \$977 million will modernize between 23 and 28 school buildings.

Capital Improvement Program (CIP)

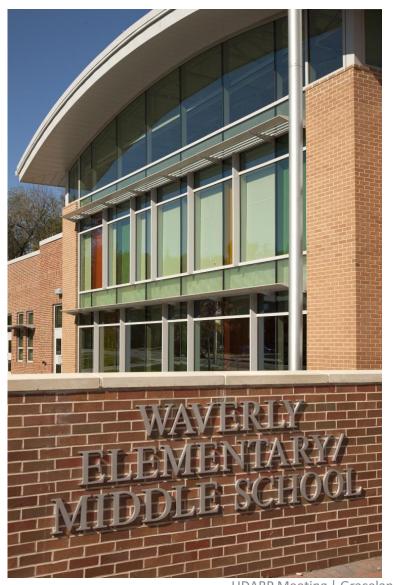
Traditional way to fund school construction and renovation.

Funding comes from the State of Maryland Interagency Committee on School Construction (IAC).

Schools to be modernized include:

- Holabird Elementary/Middle
- Graceland Park/O'Donnell Heights Elementary/Middle

Introduction - Board of School Commissioners Priorities



...to give students the building they deserve – now

- Invest to support academic success for all students
- Engage school communities to inform the creation of excellent school buildings
- Align school building with demographic and enrollment trends, parent and student choice
- Invest to have maximum impact on community stability, growth and development
- Create school buildings on the cutting edge of technology and environmental sustainability

Introduction - School Vision and Mission



- To nurture, engage, and empower the whole child for life-long excellence.
- To empower the whole child through rigorous and effective instructional practices, student engagement, and on-going schoolwide collaboration that is student centered and goal oriented.

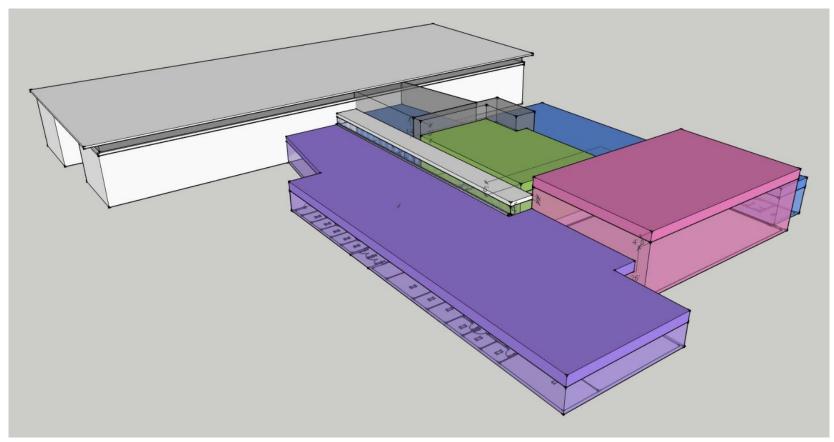
Introduction - Family and Community Guiding Principles



- Family and community engagement is essential to student success. One key role the district sees for 21st-century schools buildings is as hubs of the communities they serve.
- As a hub of the community, spaces in schools will be designed to support parent and community partnering.
- The educational specifications for the schools ensure that they meet the specific needs of their communities.

Introduction - Prototype Schools

HOLABIRD / GRACELAND PROTOTYPE SCHOOL



Student Capacity: 604 students

Pre K-Grade 8

89,155 SQ FT

Program Net: 62,325 SF Program Gross: 87,255 SF Actual Gross: 89,155 SF Design Efficiency: 70 %

Compact Building Footprint Rotate 180 degrees

Introduction - City Schools Approach to Sustainability

 Three Core Principles Promote **Environmental** Literacy Provide a Cost and Healthy Consumption School Reduction **Environment**

Project Overview - Enrollment

GRACELAND PARK CURRENT

Current grades	Pre K- 8
Current capacity	315
Current enrollment	456
Current utilization	144%

HOLABIRD CURRENT

Current grades	Pre K- 8
Current capacity	363
Current enrollment	454
Current utilization	125%

PROJECTED ENROLLMENT EACH SCHOOL

Design grades	Pre K- 8
Design capacity	604
Design enrollment	519
Design utilization	86%

Project Overview - Program

(6) Pre K and Kindergarten Classrooms	Technical education space
(4) 1 st and 2 nd grade classrooms	(2) Music classrooms
(6) 3 rd , 4 th and 5 th grade classrooms	Art room
(3) Flex classrooms	Media Center/ Video Studio
(6) 6 th , 7 th , and 8 th grade classrooms	Cafeteria
(4) Collaborative learning areas	Gymnasium
(3) Special Education classroom	Administrative, Health Suites
Middle school science lab	Student Services
	Community Space

Project Overview – Feasibility Review

SCHEME 1G and **1H**: RENOVATION PLUS ADDITION

Reuse portions of the existing buildings, maintaining historically significant portions.

Provide an addition to bring the building up to program goals.

SCHEME 2G and 2H: INDIVIDUAL REPLACEMENT

Complete replacement on site of a new state of the art PK to 8 school to meet the established program goals while the existing school remains operational on site.

SCHEME 3: NEW COMBINED BUILDING

Replace both schools in a combined building on a new site as part of the neighborhood development plan. The schools would maintain their individuality but share many of the core programs

SCHEME 4: NEW SCHOOL

Merge both schools into one larger school and replace on a new site as part of the neighborhood development plan.

SCHEME 5G and 5H: RENOVATION

Both schools are renovated at their current size to provide state of the art teaching spaces.

A Graceland **B** Holabird O'Donnell

Project Overview – LEED Silver Certification



Five LEED Categories:

- ✓ Sustainable Sites (SS)
- ✓ Water Efficiency (WE)
- ✓ Energy & Atmosphere (EA)
- ✓ Materials & Resources (MR)
- ✓ Indoor Environmental Quality (IEQ)

Two Optional LEED strategies:

- ✓ Innovation in Design (ID)
- ✓ Regional Priority (RP)

Project Overview – Beyond LEED Silver Certification

More than just LEED Silver Certified

A Focus on Net Zero Energy Design

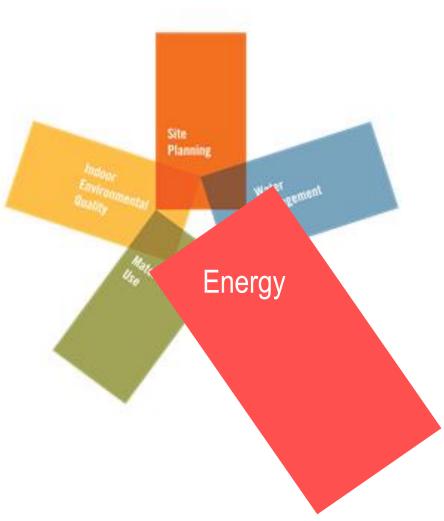
Optimizing Passive Design

+

Optimizing Active Systems

+

Offsetting with On-Site Renewable Energy



Project Overview – Beyond LEED Silver Certification

Maryland Net Zero Energy Schools Program

Goal: Support the development of 3 net zero energy schools within the BGE service area. A NZE school produces as much energy as it uses over a given year.

How do we get there? The design reduces energy use through energy efficiency measures and uses renewable energy to generate the rest.

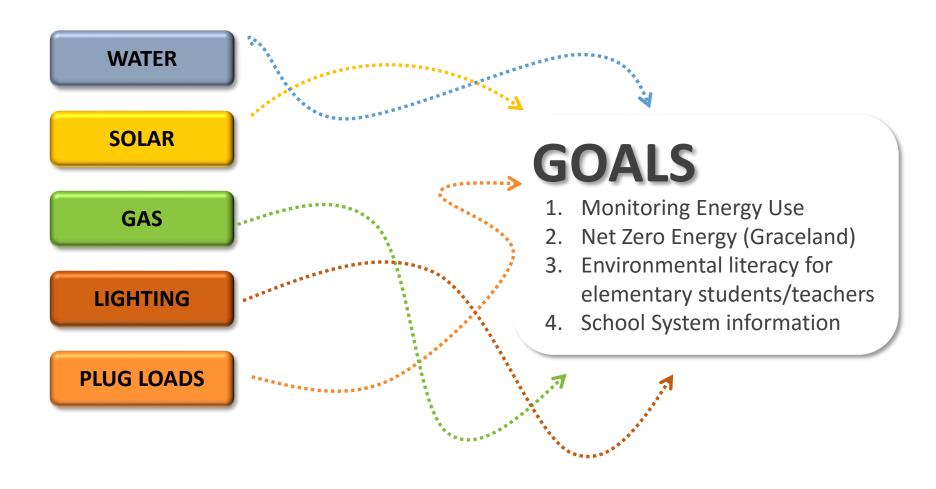
MEA has set a design goal of <25 kBTU/ sq.ft. for a NZE school.

Must consider ALL school uses, not just daytime education.



Project Overview

METERING > MEASUREMENT > IMPROVEMENT



Project Schedule

Modified Schematic Design: January 2016

Design Development: February 2016 – August 2016

Construction Documents: August 2016 – February 2017

Building Permit: January 2017

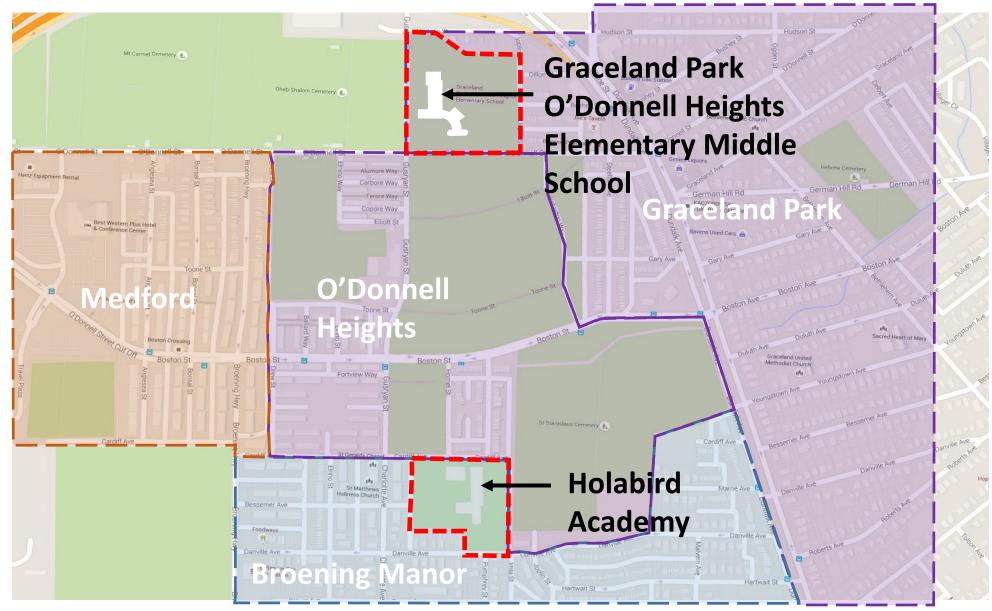
Bidding and Negotiation – February – June 2017

Construction:

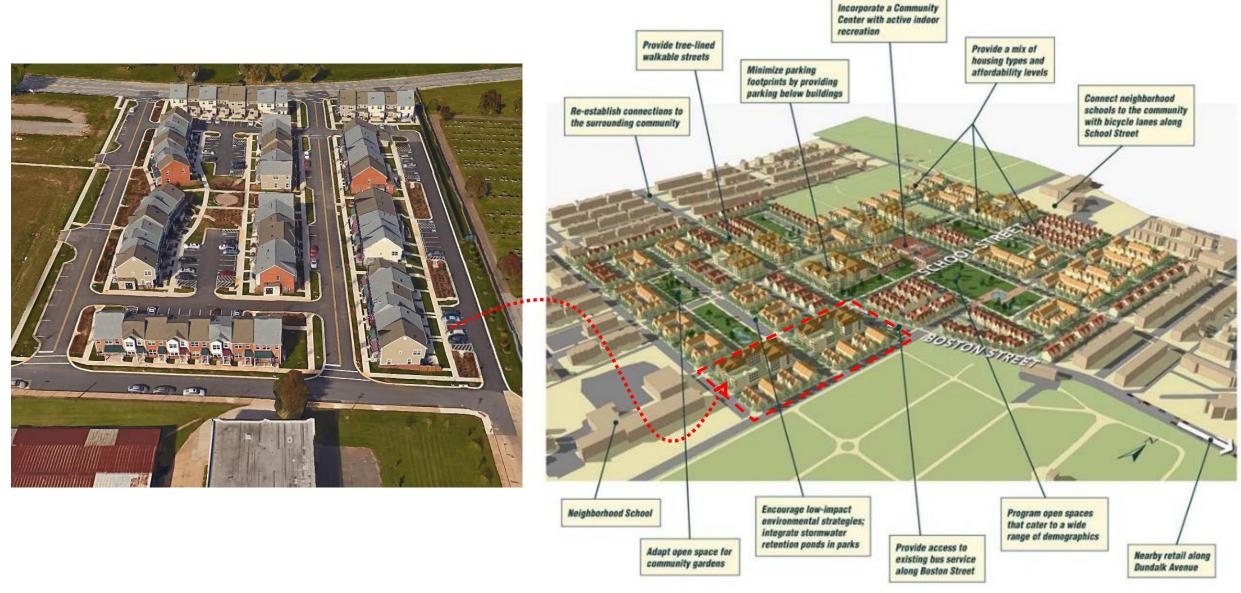
Phase 1 (New Building/Site Work): June 2017 – Late 2018

Phase 2 (Building Demolition/Site Work): January 2019 – August 2019

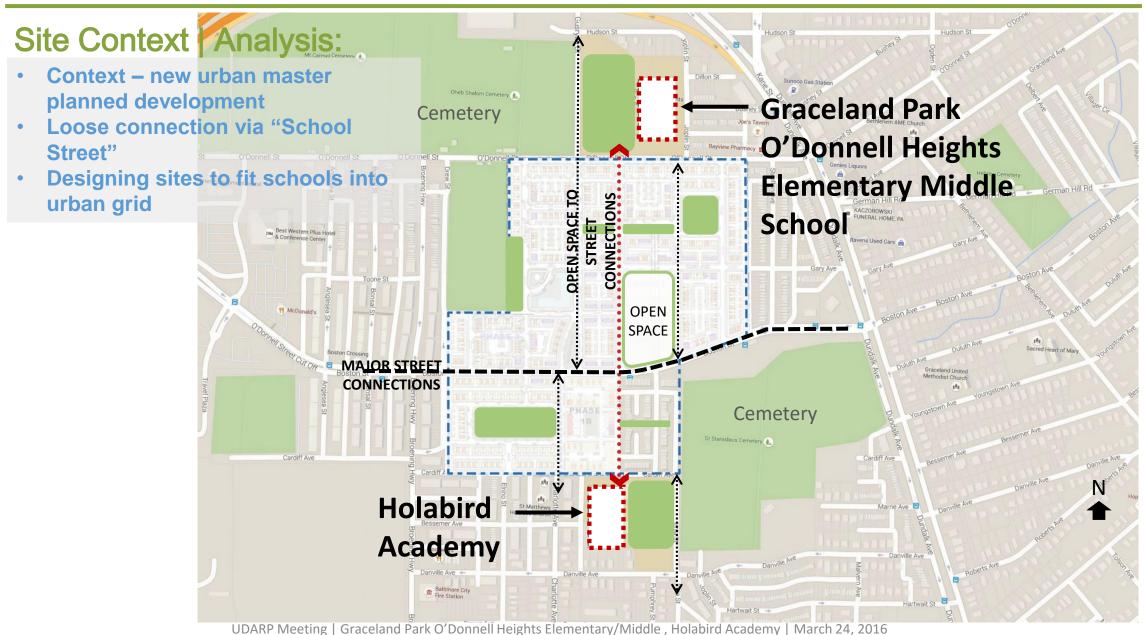
Community Connections



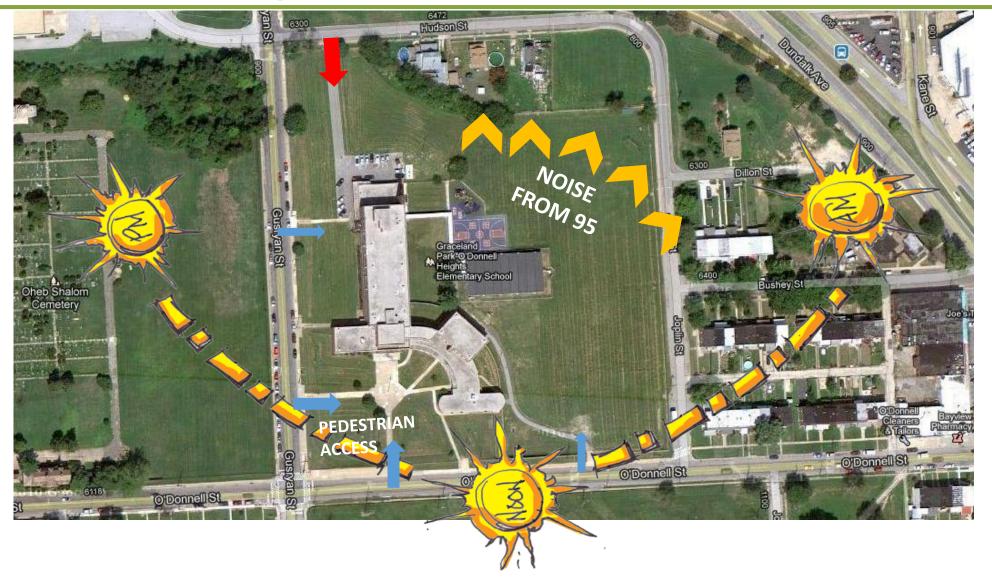
Community – Master Plan



Community Connections



Graceland Existing Site





Graceland Existing Site – View @ corner of Gusryan and O'Donnell Sts.









UDARP Meeting | Graceland Park O'Donnell Heights Elementary/Middle, Holabird Academy | March 24, 2016

Graceland Existing Site – Views along Gusryan Street









UDARP Meeting | Graceland Park O'Donnell Heights Liementary/Middle, Holabird Academy | March 24, 2016

Graceland Existing Site – Views along O'Donnell Street









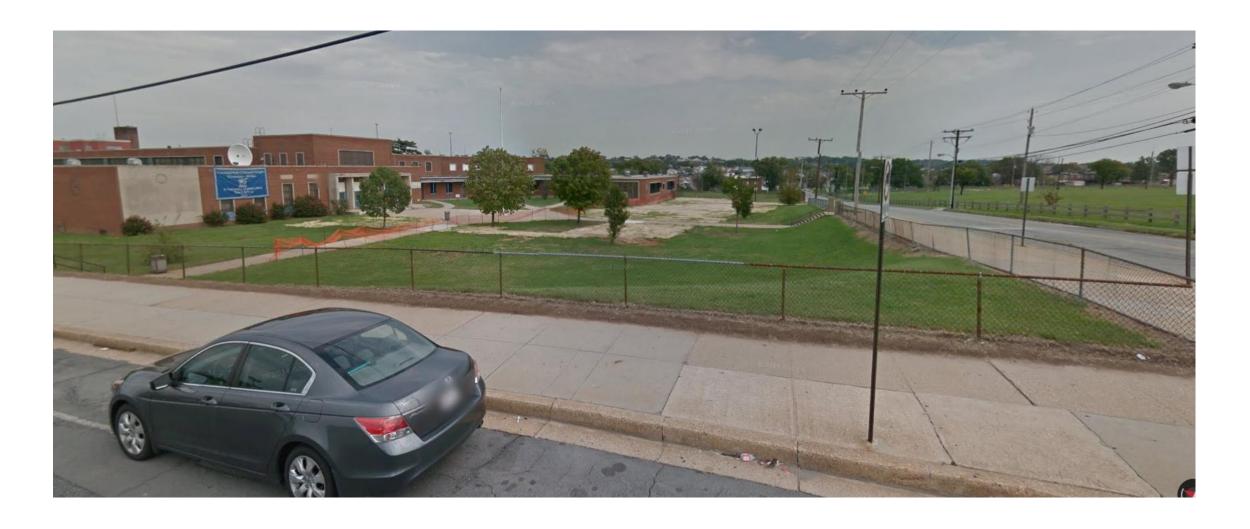




UDARP Meeting | Graceland Park O'Donnell Height

nentary/Middle, Holabird Academy | March 24, 2016

Graceland Existing Site - View from SW corner



Graceland Existing Site – View from NW corner



Holabird Existing Site



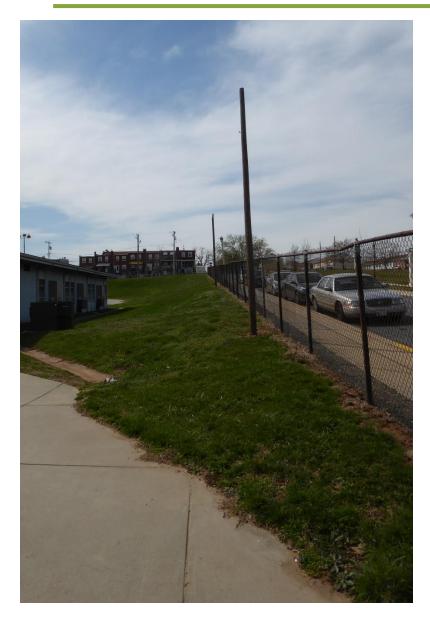


Holabird Existing Site - View along Imla Street



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Holabird Existing Site – Views along Cardiff Avenue





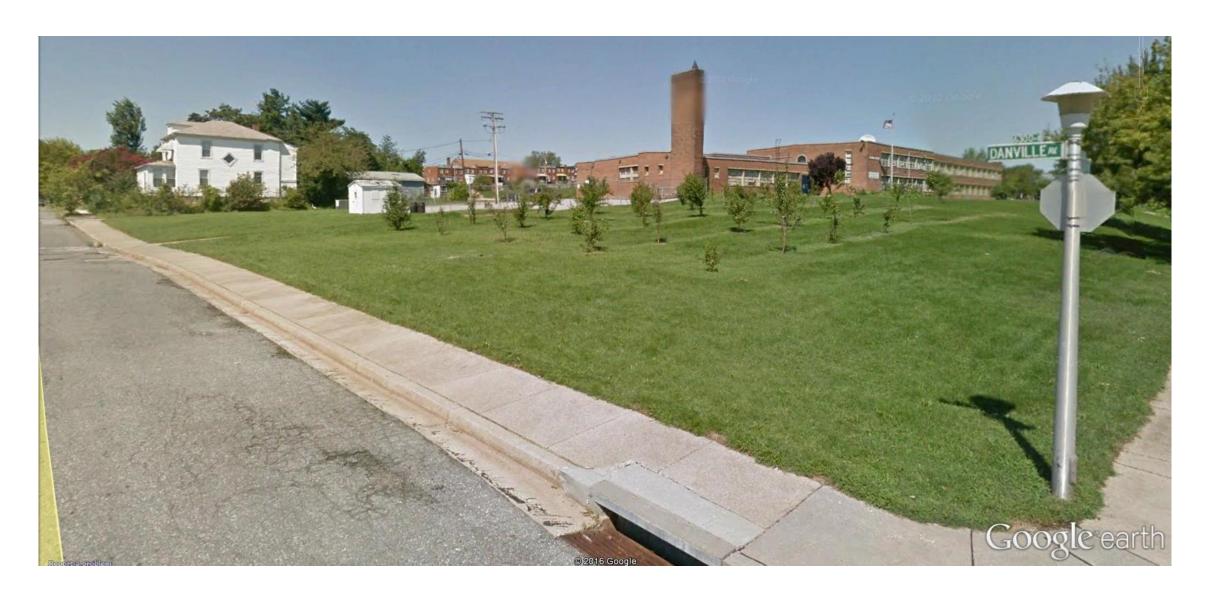


Holabird Existing Site – Views along Cardiff Avenue





Holabird Existing Site – View from SE corner



Holabird Existing Site – Views along alley on west side





Holabird Existing Site – Views to the west inside site



Neighborhood Context – Existing and new Housing



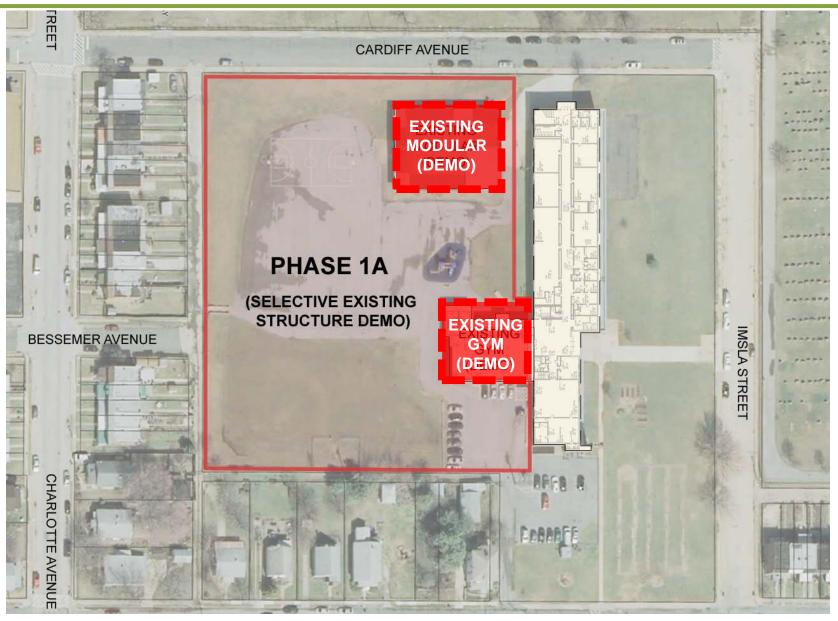
Neighborhood Context – Single family homes



Holabird Available Building Area

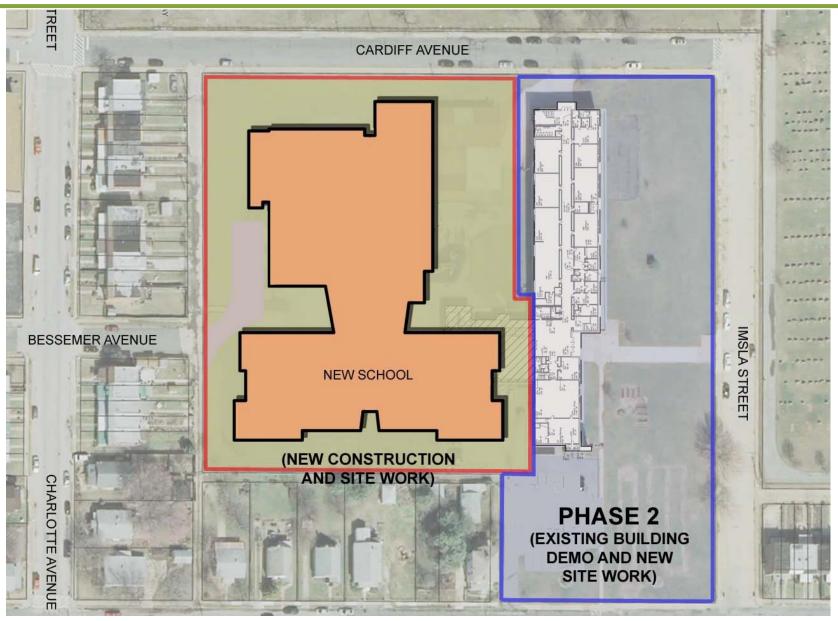


Holabird Phasing



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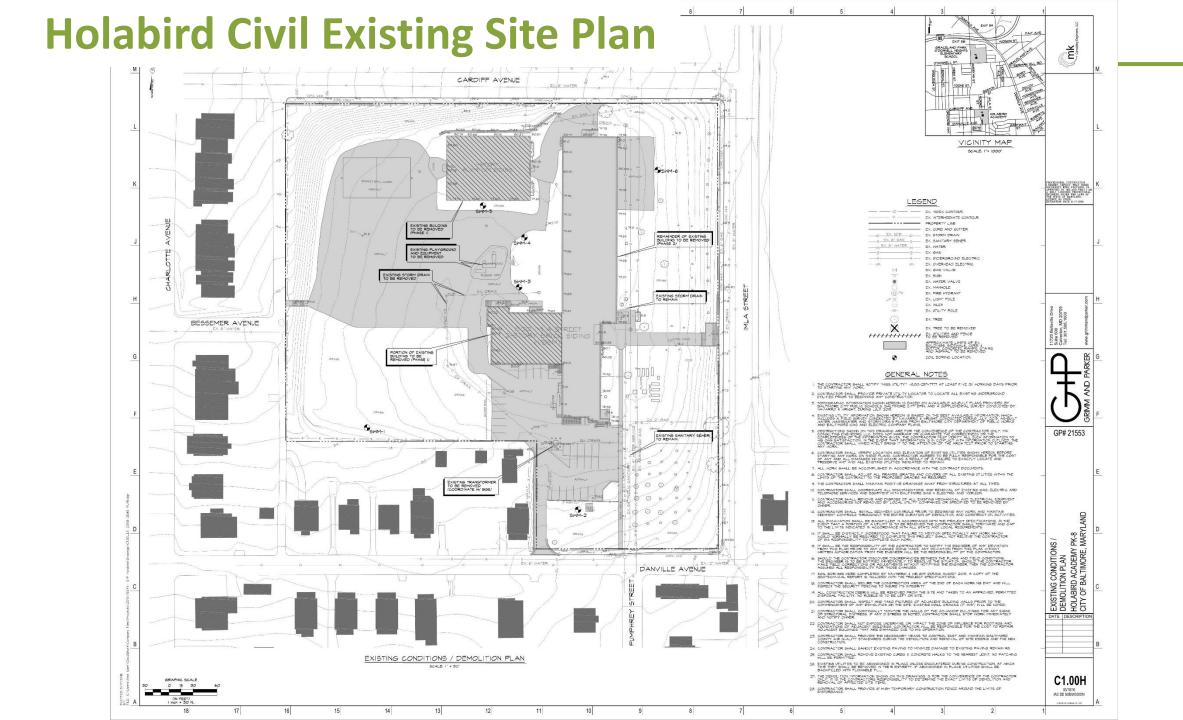
Holabird Phasing



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Holabird Site Design – Outdoor Learning Environments





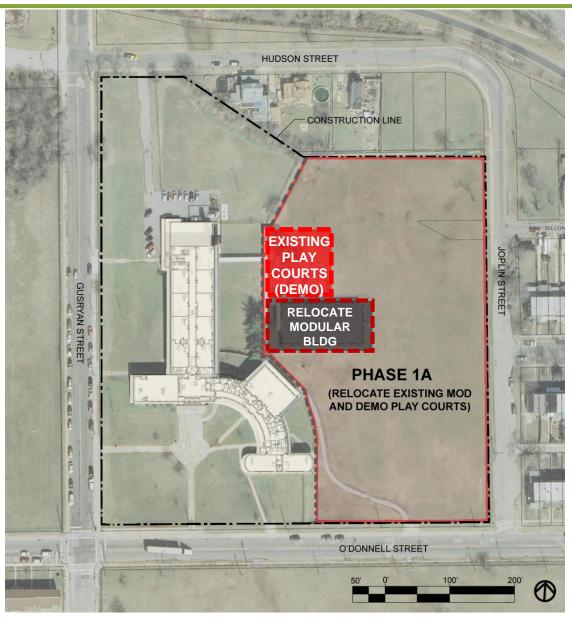
Holabird - Civil Proposed Site Grading Plan Ě EX HATER EX SAS EX UNDERGROUND ELECTR EX. OVERHEAD ELECTRIC EX HATER VALVE EX. LIGHT POLE EX. INLET EX. UTILITY POLE IIIO PROP. CONTOJR PROP. CONCRETE WALK PROP. CJRB AND GUTTER PROP. FENCE PROP. INLET PROP, HATER VALVE FROM FIRE HYDRANT PROPOSED HOLABIRD ELEMENTARY/ PROP. 9 SN MIDDLE SCHOOL F.F. ELEV. 82.75 SITE DATA I. SITE ADDRESS. ISOD INLA STREET BALTIMORE NO 20224 4. BLOCK: BESSEMER AVENUE 6. PROPERTY OWNER. MAYOR AND CITY COUNCIL OF BALTIMORE 6 SITE IS LOCATED WITHIN THE BALTIMORE HARBOR MATERSHEDS 4. SITE LIES WITHIN HITHIN SONE X (AREAS OUTSIDE THE 0.2% ANNUAL CHANCE FLOOD) AS SHOWN ON FIRM MAP DATED APRIL 2, 2014. ID. SITE IS NOT LOCATED HITHIN THE CHESAPEAKE DAY GRITICAL AREA. IS. USE. EXISTING - ELEMENTARY SCHOOL PROPOSED - FLEWENTARY SCHOOL 14. CONSTRUCTION TYPE: SLAB ON GRADE IS. BULDING SQUARE FOOTAGE: EXISTING + 26,640 SQ. FT. / PROPOSED + 65,000 SQ. FT. PARAMENTARY SCHOOL IN RS ZONE 1 SPACE FIRE 3 TRACERS SEMBITIARY SCHOOL IN RS ZONE STACKERS 1 SO SPACES SEMBITIARY SCHOOL IN RS ZONE STACKERS 1 SO SPACES SEMBITIARY SCHOOL IN RS ZONE STACKERS 1 SO ZONE ACCISCRETE PARKING BICYCLE PARKING: I SPACE POR IO VEHICLE SPACE OR IS SPACES LOW DWISSION FUEL EFFICIENT VEHICLE PARKINGS SN OF PROPOSED PARKING (SN OF 26 + 13 SPACES) IA PARKING PROVIDED. VEHICLE FARKING: 21 SPACES 2 ACCESSIBLE SPACES (NOLUDING I VAN ACCESSIBLE SPACE) BICYCLE PARKING LOW EMISSION FUEL EFFICIENT VEHICLE PARKING: 2 SPACES GENERAL NOTES THE CONTRACTOR SHALL NOTIFY 'MISS UTILITY' (I-800-251-TITI) AT LEAST FIVE (S) HORKING DAYS PRICE TO STARTING MAY NORK. 2. CONTRACTOR SHALL PROVIDE A PRIVATE UTILITY LOCATOR TO LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO EDGINNING ANY CONSTRUCTION. OBSTRUCTIONS SOCIAL ONLY THE PRAYED ARE FOR THE CONVENIENCE OF THE CONTENTION ONLY. HE CONSTITUTION OF THE CONTENTION OF THE CONTENTION OF THE CONTENTION OF THE CONTENTION OF THE PROPERTIES OF THE CONTENTION FOR THE CONTENTION OF THE CONTENTION OF THE PROPERTIES. 5 TOPOGRAPHIC INFORMATION SHOWN HEREICH IS BASED ON BALT MORE CITY SIS AND A FIELD SURVEY CONDUCTED BY ALLTIC, INC., DURING MARCH, 2016. DANVILLE AVENUE 6. REMOVAL OF ANY SIDERALK AND/OR CURB AND SUTTER SHALL BE TO THE NEAREST JOINT, NO PATCHING SHALL BE PERMITTED. 1. ADJUST TOP OF CURB GRADES TO PROVIDE SMOOTH TRANSITION. SANCUT EXISTING PAYING AS NEEDED TO INSTALL NEW CONSTRUCTION. STRIP AND RESIREFACE EXISTING PAYING AS NEEDED TO PROVIDE SMOOTH TRANSITION TO EXISTING SUFFACE. O IT SHALL BE DISTINCTLY UNDERSTOOD THAT FAILIRE TO MENTION SPECIFICALLY ANY WORK WHICH WOULD NOTWALLY BE REQUIRED TO GOMFLETE THIS PROJECT SHALL NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBLY TO COMPLETE SIZE HORK. 걸는 9 SHOULD THE CONTRACTOR DISCOURS DISCOURS DISCOURS BETHEM THE FLANS AND FIELD CONDITIONS, THE DISCOURS IN TO BE NOT'D. IN PROPRIATELY TO RESIDENCE THE SITUATION, INCLUSING CONTRACTOR MAKE PIELD CORRECT ONE OR ADJUSTMENTS INTRACT NOT PYING THE BIGHTER, THEN THE CONTRACTOR ASSISTED ALL RESPONDED LITY FOR THOSE CHANGES. IB. THE CONTRACTOR SHALL NOTE THAT IN CASE OF ANY DISCREPANCY BETWEEN THE SCALED AND FIGURED DIMENSIONS SHOWN ON THESE PLANS, THE FISURED DIMENSIONS SHALL SOVERN. 4 PRIOR TO BESINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL TIE-IN ELEVATIONS. 5. STRUCTURAL FILE IN SULFINA AND PAYERED ASSOCIATION FOR A CEDIT OF RECOVERY OF A CONTROL OF THE ACCOUNT OF A CONTROL OF THE ACCOUNT OF A CONTROL OF THE ACCOUNT OF A CONTROL OF A CONTROL OF A CONTROL OF THE ACCOUNT OF THE ACCOUNT OF A CONTROL OF THE ACCOUNT OF 6. THE CONTRACTOR AS CALLEY RESPONSIBLE FIRST THE FRONT STANK OF THE SIX-PRADE ANT, IT RECEIVED THAN CHIEF ARE PREMISED AND THE CALLED AND THE SIX-PRADE SIX PREMISED AND THE CONTRACTOR AND THE SIX PREMISED AND THE SIX PREMISED AND THE SIX PREMISED AND THE SIX PROPERTY OF THE SIX PRO PROPOSED SITE PLAN IT. ALL CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE HITH THE LATEST BALTIMORE CITY STANDARD DETAILS AND SHECIFICATIONS AND ALL REVISIONS THERETO, MUSES OTHERWISE MOTED. IB. CONTRACTOR SHALL ADJIST ALL FRAMES, CRATES AND COVERS OF ALL EXISTING UTILITIES WITHIN THE LIMITS OF THE CONTRACT TO THE PROPOSED GRADES, AS REGUIRED. C2.00H ON PAYMS PERSON CHAIL BE IN ACCORDANCE WITH BALTHOOPE CITY CTANDARD DETAIL BY STALLED 03/18/16 IAC DD SUBMISSION 21. IT SHALL BE THE REPROSEDELT OF THE CONTRACTOR TO ENGINE THAT ALL SITE ELEMENTS ARE CONSTRUCTED IN ACCESSION OR HOST CARSENT.

Graceland Available Building Area



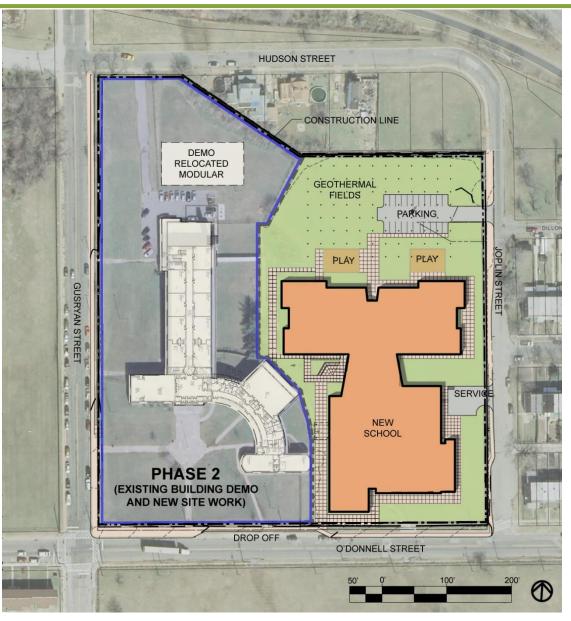


Graceland Phasing



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Graceland Phasing

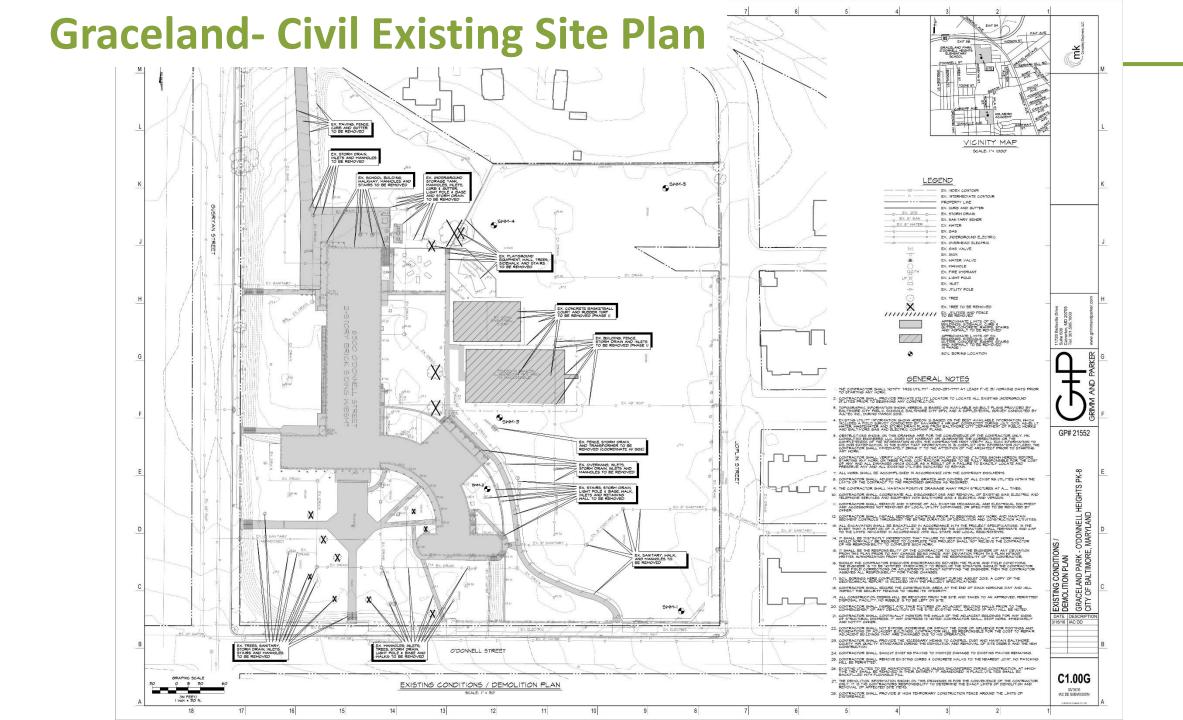


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Graceland Site - Learning Environments

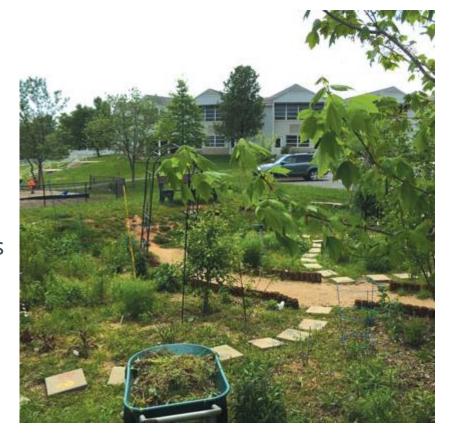


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Graceland - Civil proposed Site Grading Plan mk EX GAS EX UNDERGROUND ELECTRIC EX OVERHEAD ELECTRIC EX GAS VALVE EX. DISN EX. MATER VALVE EX. MANHOLE EX. FIRE HYDRANT EX. UTILITY FOLE PROP. CONTOUR PROP CONCRETE HALK PROP STORM DRAIN PROP. HATER PROP. MATER VALVE (E) PROP. FIRE HYDRANT PROP. 6'5 PROP. SANITARY SEMER PROP PARKING SPACES 0 SITE DATA I. SITE ADDRESS. 5. SECTION 4. BLOCK: 6. PROPERTY OWNER. HAYOR AND CITY COUNCIL OF BALTIMORE 8. SITE IS LOCATED WITHIN THE BALTIMORE HARBOR SITE LIES WITHIN MITHIN ZONE X (AREAS OUTSIDE THE 0.2% ANNUAL CHANGE FLOOD). AS SHOWN ON FIRM MAP 24000/10020E, DATED AFRIL 2, 2014. IO. SITE IS NOT LOCATED WITHIN THE CHESAPEAKE BAY CRITICAL AREA IS JSE EXISTING - ELEMENTARY SCHOOL PROPOSITO - IN EVENTARY SCHOOL 14. CONSTRUCTION TYPE: SLAB ON GRADE ID. BUILDING USE: INSTITUTIONAL IS. BULDING SQUARE POOTAGE: EXISTING # 52,925 SQ. FT. / PROPOSED # 65,094 SQ. FT. GRACELAND PARK PROP. OUTDOOR LEARNING AREA O'DONNELL HEIGHTS ELEMENTARY / MIDDLE PRACTICE PARKING. SELECTION OF SCHOOL IN 85 2018. SPACE PRE 3 TRACTICES GOT TRACTICES OF SCHOOL IN 85 2018. SPACE PRE 3 TRACTICES ELECTRICATE 50-400. IN 85 2018. SPACE SCHOOL F.F. 46.50 BICYCLE PARKING: I SPACE PER IO VEHICLE SPACE OR ID SPACES LOW EMISSION FUEL EFFICIENT VEHICLE PARKING. 5% OF PROPOSED PARKING (9% OF 26 * 13 SPACES) IN PASKING PROVIDED VEHICLE PARKING. 21 SPACES 2 ACCESSIBLE SPACES (INCLIDING I VAN ACCESSIBLE SPACE) DICYCLE PARKING LOW EMISSION FUEL EFFICIENT VEHICLE PARKING. 2 SPACES I. THE CONTRACTOR SHALL NOTIFY "MISS UTILITY" (I-800-25%-7711) AT LEAST FIVE (5) WORKING DAYS PRIOR TO STARTING MY KORK. 2 CONTRACTOR SHALL PROVIDE A PRIVATE UTILITY LOCATOR TO LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO BEGINNING MY CONSTRUCTION. 5. TOFOSRAFHIC INFORMATION SHOWN HEREON IS BASED ON BALTIMORE CITY SIS AND A FELD SURVEY CONDUCTED BY AULTED INC. MARCH 2016. REMOVAL OF ANY SOEVALK AND/OR CURB AND SUTTER SHALL BE TO THE NEAREST JOINT, NO PATICHING SHALL BE PERCHITIED. 4. STRIF AND RESIRFACE EXISTING FAVING AS NEEDED TO PROVIDE SMOOTH TRANSITION TO EXISTING GRACELAND F IO. IT SHALL BE DISTINCTLY INDERSTOOD THAT FAILURE TO MENTION SPECIFICALLY ANY MORK HHICH HOLD NORWALLY BE REDUISED TO COMPLETE THIS PROJECT SHALL NOT RE, EVE THE CONTRACTOR OF HIS SEPONDEDLY TO COMPLETE SUCH MORK. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ENSINEER OF ANY DIV AT PROMITHS PLAN PRIOR TO ANY CHANGE SENS MADE, ANY DEVIATION FROM THIS PLAN AIMPOUT WRITTEN AUTHORIZET ON FROM THE ENGINEER WILL BE THE RESPONSIBILITY OF THE CONTRACTOR. IS. THE CONTRACTOR SHALL NOTE THAT IN CASE OF ANY DISCREPANCY BETWEEN THE SCALED AND FISURED DIMENSIONS SHOWN ON THESE PLANS. THE FISURED DIMENSIONS SHALL SOVERN. 14. PRIOR TO BESINNING CONSTRUCTION, THE CONTRACTOR SHALL VERIFY ALL TIE-IN ELEVATIONS II. ALL CONSTRUCTION SHALL BE COMPLETED IN ACCORDANCE HITH THE LATEST BALTIMORE CITY STANDARD DETAILS AND SPECIFICATIONS AND ALL REVISIONS THERETO, INLESS OTHERWISE NOTED. IB. CONTRACTOR SHALL ADJIST ALL FRAMES, GRATES AND COVERS OF ALL EXISTING UTILITIES WITHIN THE LIM TS OF THE CONTRACT TO THE PROPOSED GRADES, AS REQUIRED. C2.00G III. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE TO SHALES AND/ OR STORM DRAIN SYSTEMS AT ALL THES. PROPOSED SITE PLAN 03/18/16 IAC DD SUBMISSION 2). IT SHALL BE THE RESPONDIBILITY OF THE CONTRACTOR TO ENGINE THAT ALL SITE ELEMENTS ARE CONSTRUCTED IN ACCORDANCE WITH THE ADA 2010 STANDARDS FOR ACCESSIBLE DESIGN OR MOST CASETY.

- Creating "NO-MOW" areas and signage
- Biofilters and Raingardens
- Rain barrels at Edible Garden Areas
- Storm drain stenciling
- Informational signage at fixtures







- Energy use monitoring
- Wind energy teaching station
- Solar energy teaching station "Solar Lab/Deck/Porch"
- Sub-metering or defined loads of spaces
- Solar Kitchen/Nutrition Lab









Analemmatic sundials are a type of horizontal sundial that has a vertical gnomon and hour markers positioned in an elliptical pattern. A gnomon is the part of a sundial that casts a shadow. What's special about our sundial is that the person standing in the middle acts as the gnomon.



To plot your own sundial, you need to know where North, South, East and West are, as well as your longitude and latitude. You also need to know the time zone.

These sundials are large pieces of mathematical sculpture.

Just remember that they mark solar time and not clock time.

what time do you have



Check out this website for more information: www.plus.maths.org/content/analemmatic-sundials-how-to how-to-build-one-and-why-they-work.org

Signage created by Grimm + Parker Architects









- Structured outdoor classroom areas
- Habitat houses for wildlife
- Tree identification tags
- Environmental art
- Amphitheater for classroom or community
- Natural walkways with signage









Connecting with Nature, Environmental Literacy Tie-Ins



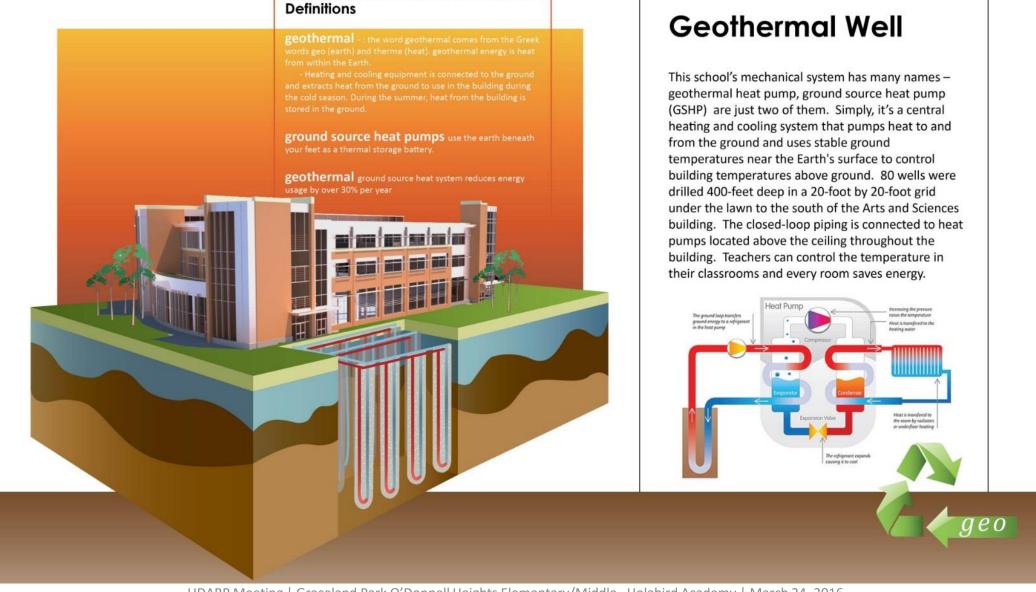


Interacting with Building Systems





Demystifying "Hidden" High Performance Systems



Connecting Green Design to Curriculum and Clubs





Exposing Building Systems





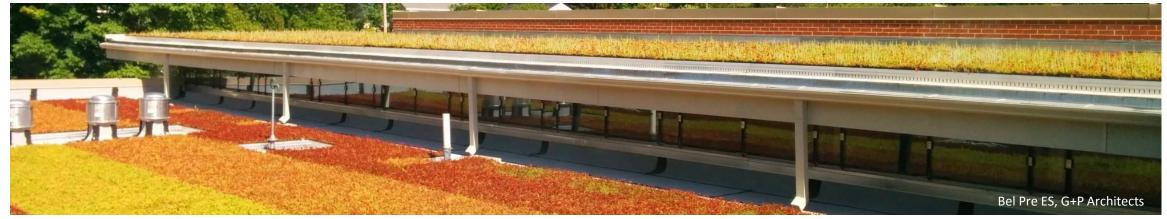


Vegetative Roof as a Teaching Tool









Connecting Energy to Curriculum

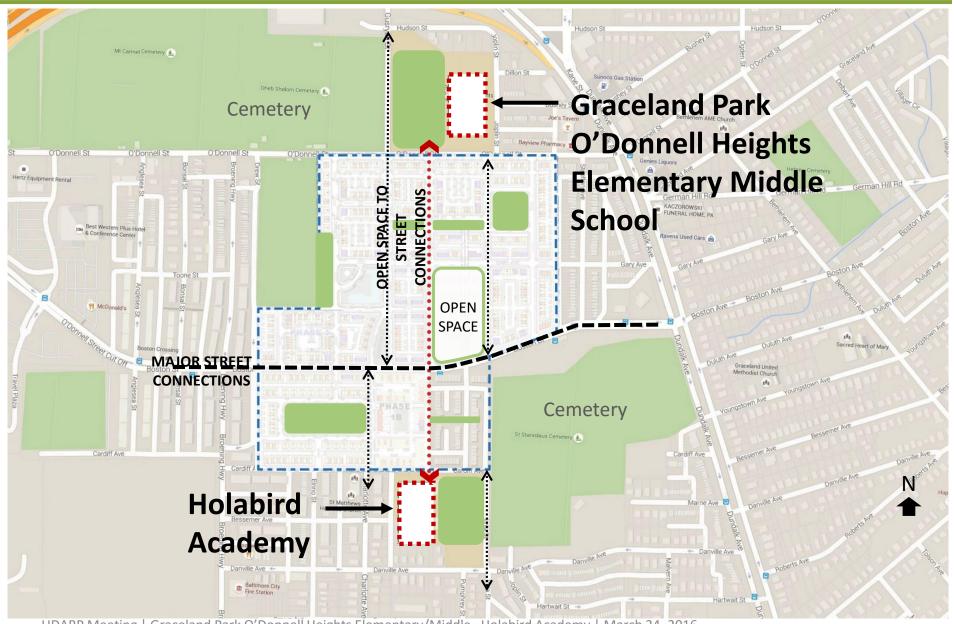


Middle School is the perfect age for integrating high performance building strategies and systems with curriculum



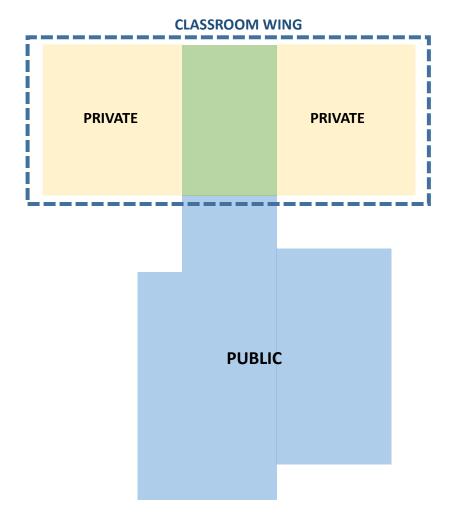
Community Connections

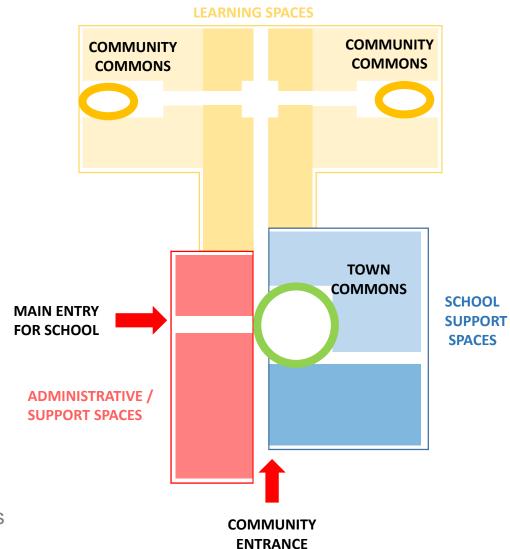
Site Context



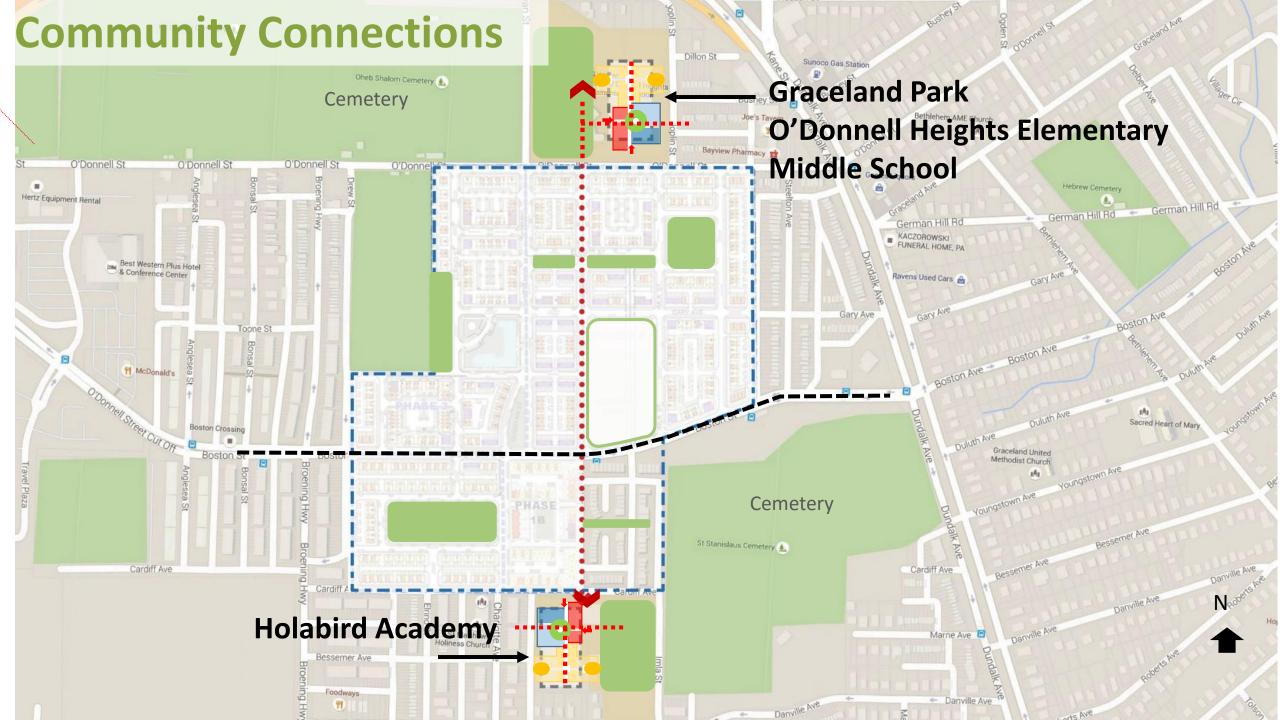
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Building - Organization

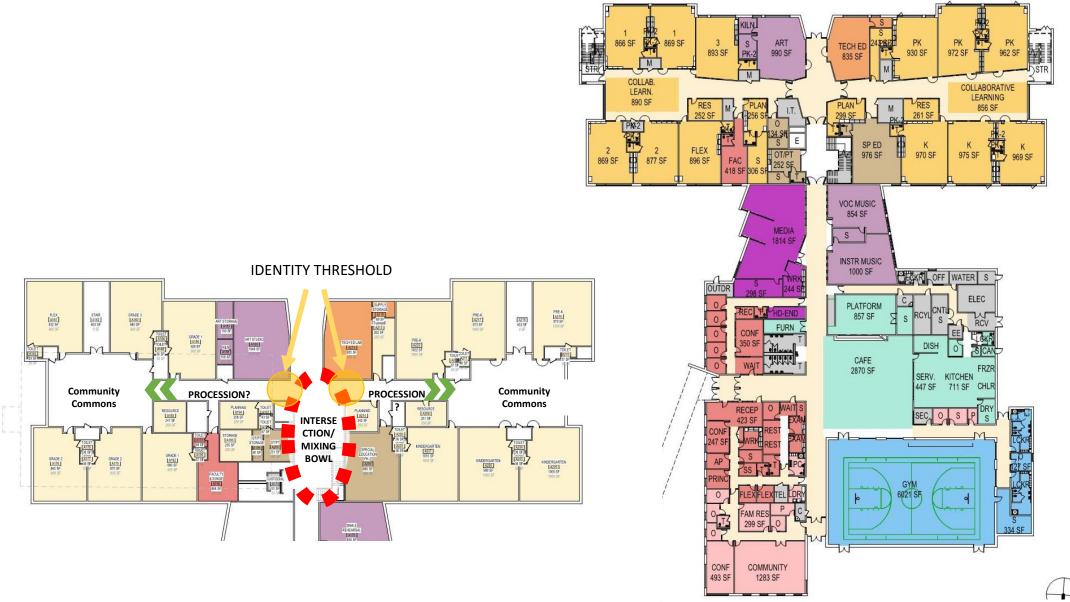




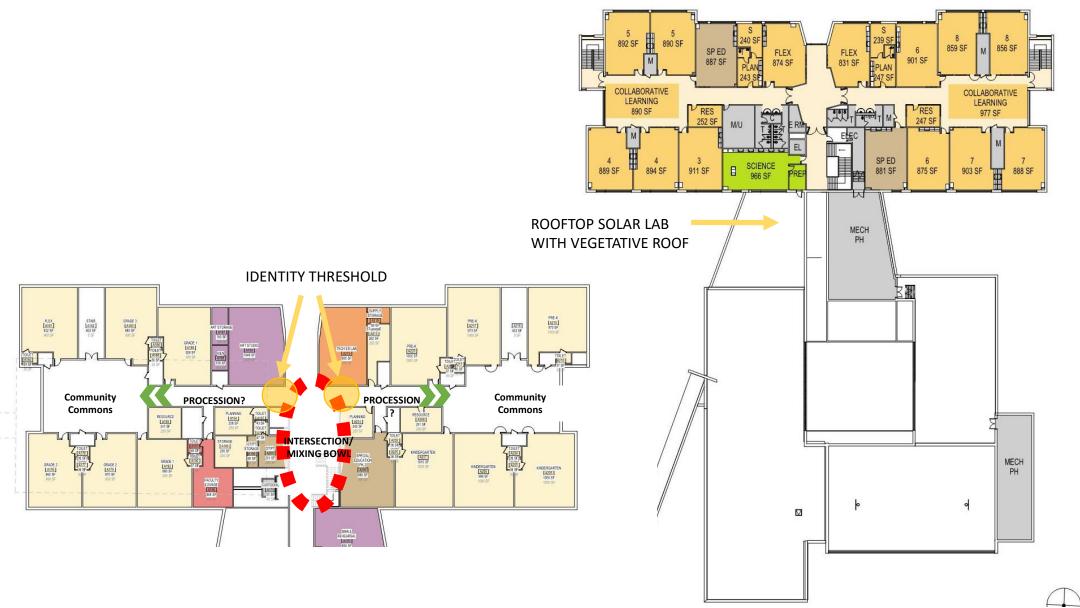
- Separate school/community entrances
- Open dining "Town Commons"
- Classroom clusters with "Community Commons" on each floor



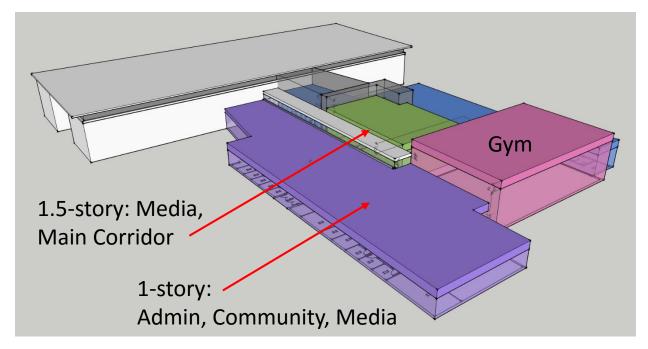
Building – 1st floor plan

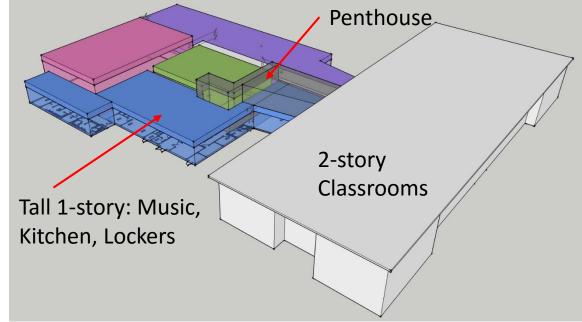


Building – 2nd floor plan

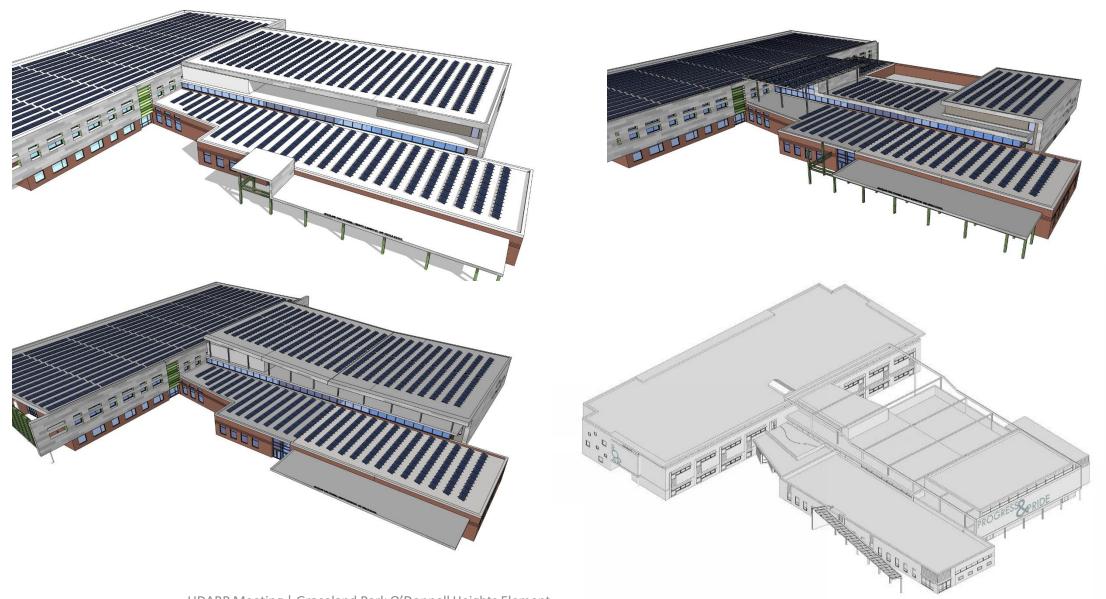


Building – Massing Diagram

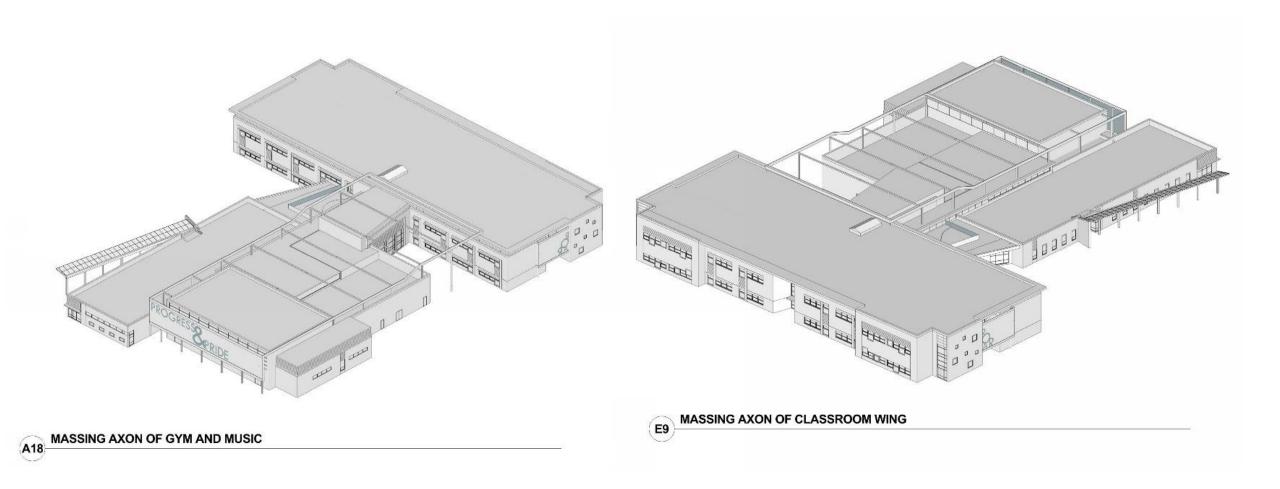




Roof studies

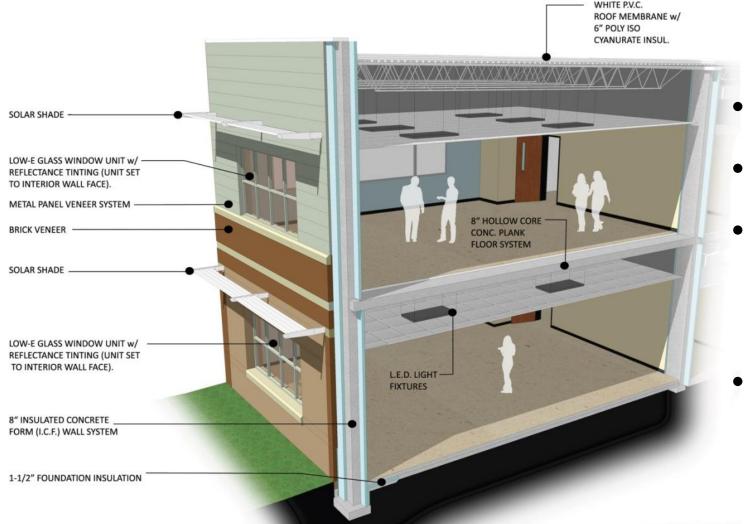


Building - Massing



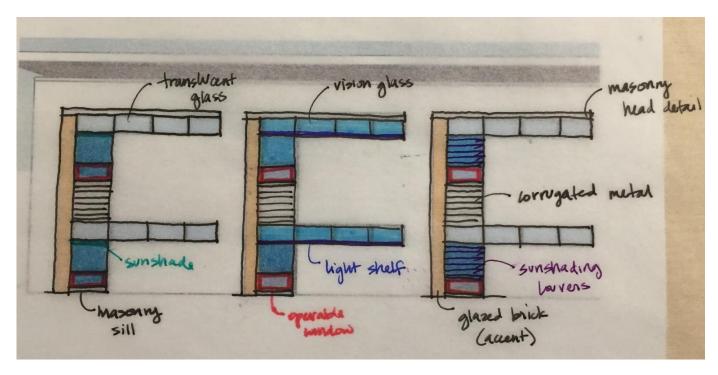
Project Overview

Classroom Daylighting Strategies



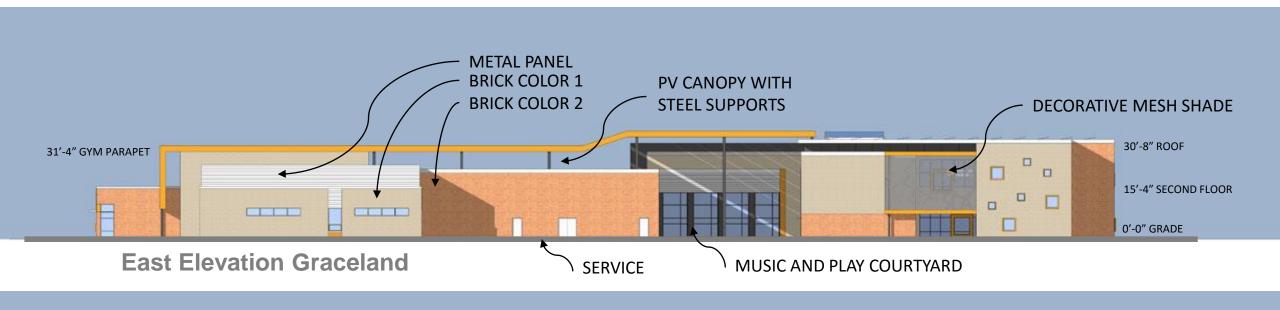
- Reduced window/wall ratio
- Solar shades
 - Reduced Lighting Power Density from 0.9 to 0.45 w/SF
- Simplified lighting controls

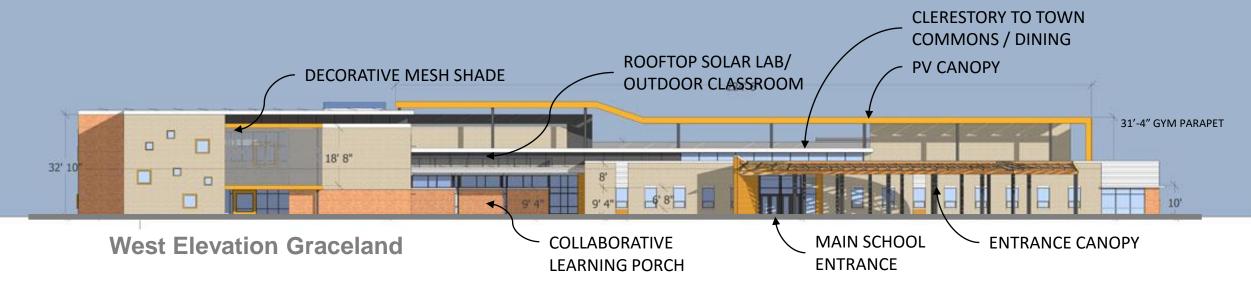
Fenestration Studies



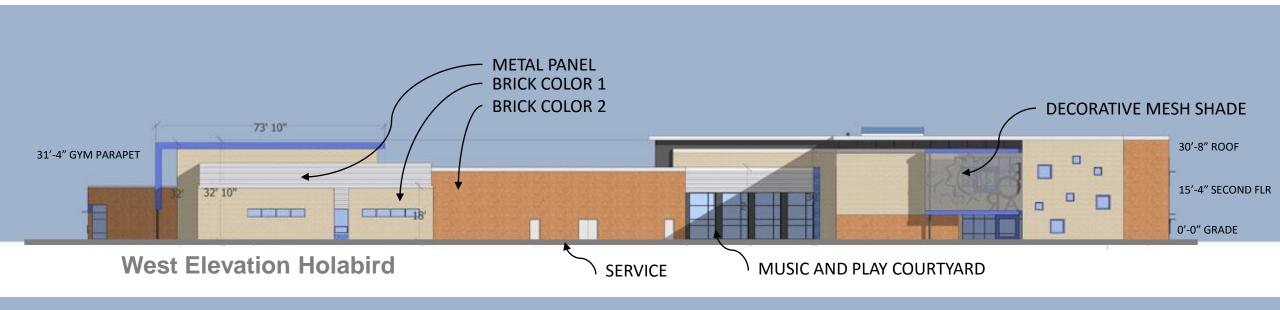


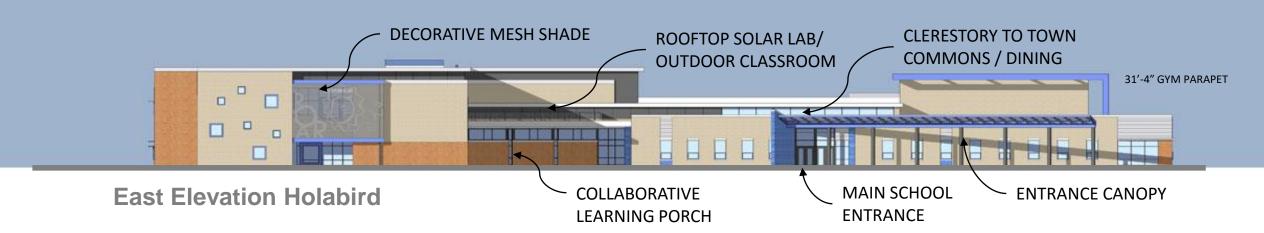
Elevations - Graceland



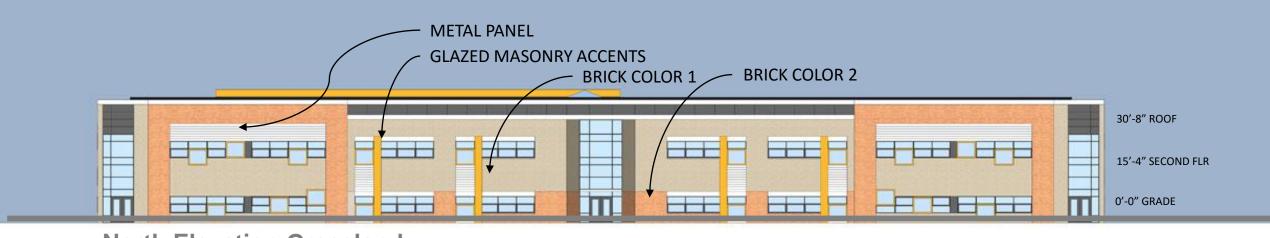


Elevations - Holabird

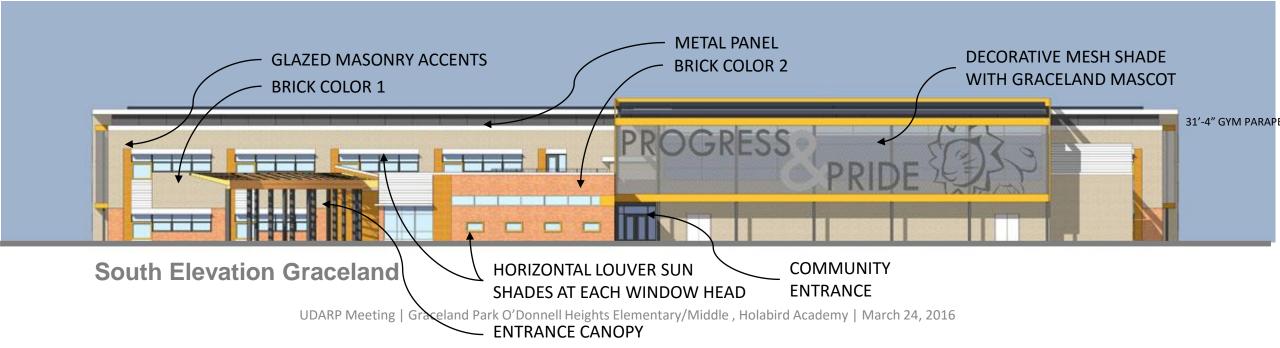




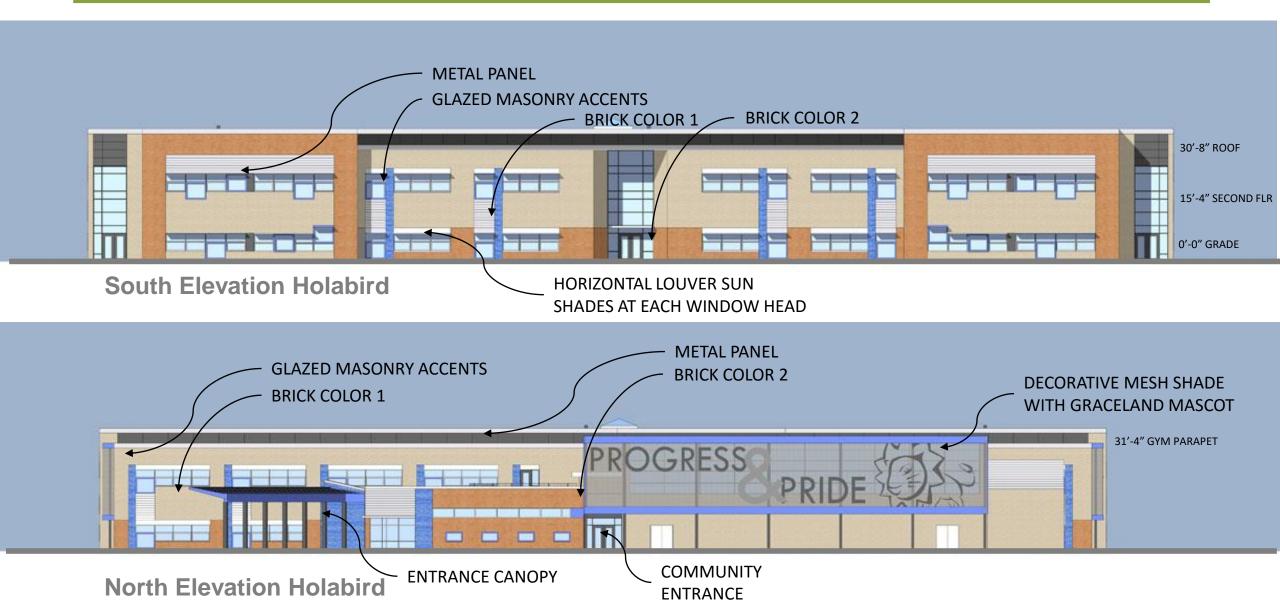
Elevations - Graceland



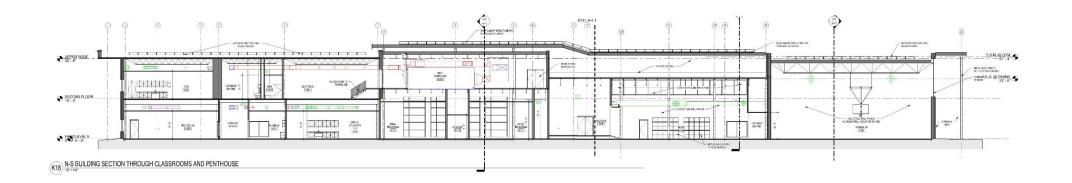
North Elevation Graceland

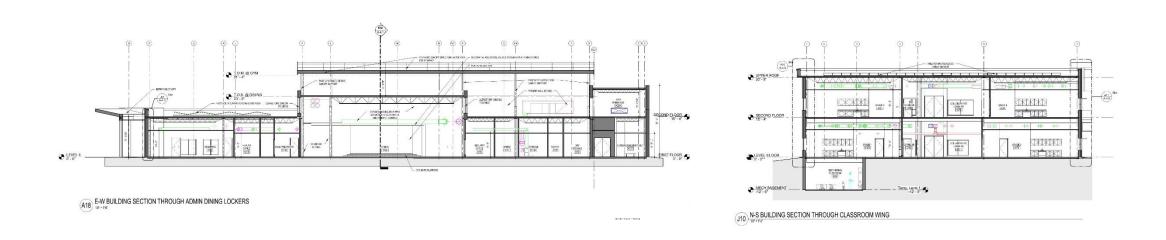


Elevations - Holabird

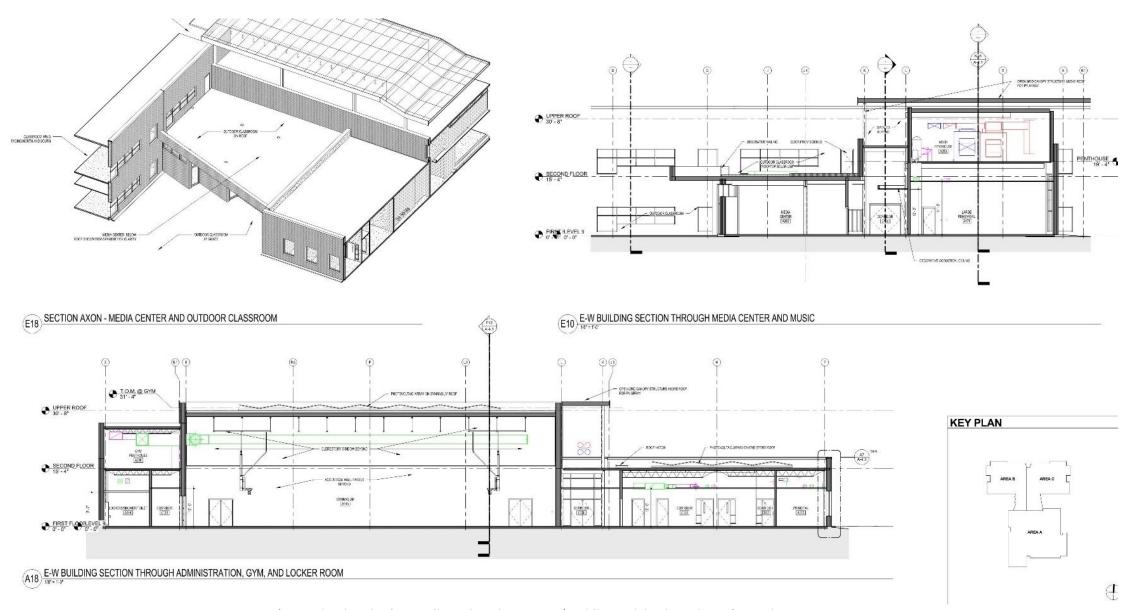


Building - Sections





Building - Sections



Aerial View - Holabird



Aerial View - Holabird



Approach to Main Entrance - Holabird



View of Media Center Outdoor Learning Area - Holabird



Aerial View - Graceland



Aerial View - Graceland



Approach to Main Entrance - Graceland

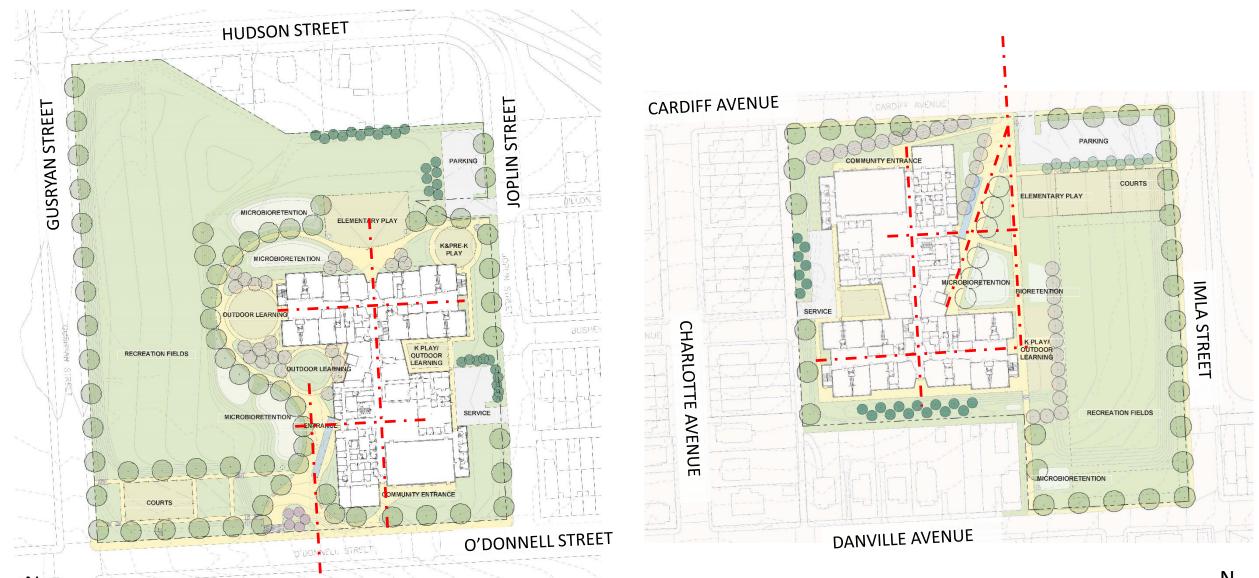


View of Media Center Outdoor Learning Area - Graceland



Graceland Site Plan

Holabird Site Plan





Graceland ES/MS

Holabird ES/MS

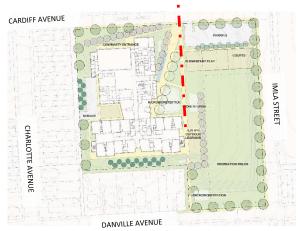




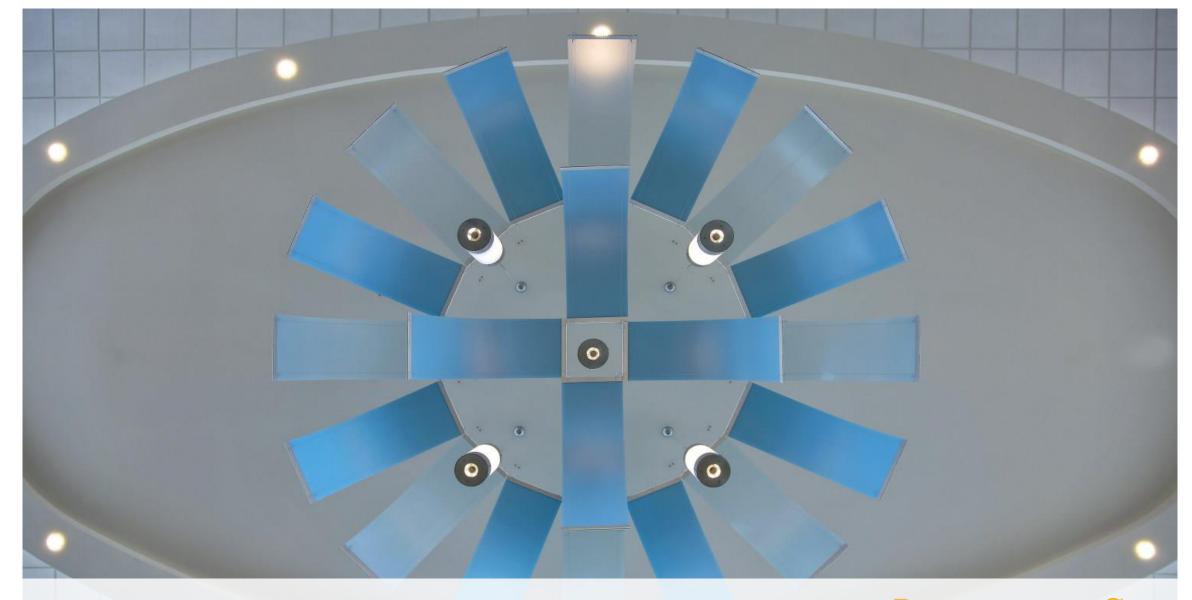


- Net Zero Energy Design = Onsite renewables (PV)
- **Curvilinear Site Layout**
- Gym facing South
- Classroom Bar facing North

- Oriented 180 degrees from **Graceland School**
- Rectilinear Site Layout with **Diagonal Entrance Canopy** and Path Connecting to "School Street"
- Gym facing North
- Classroom Bar facing South





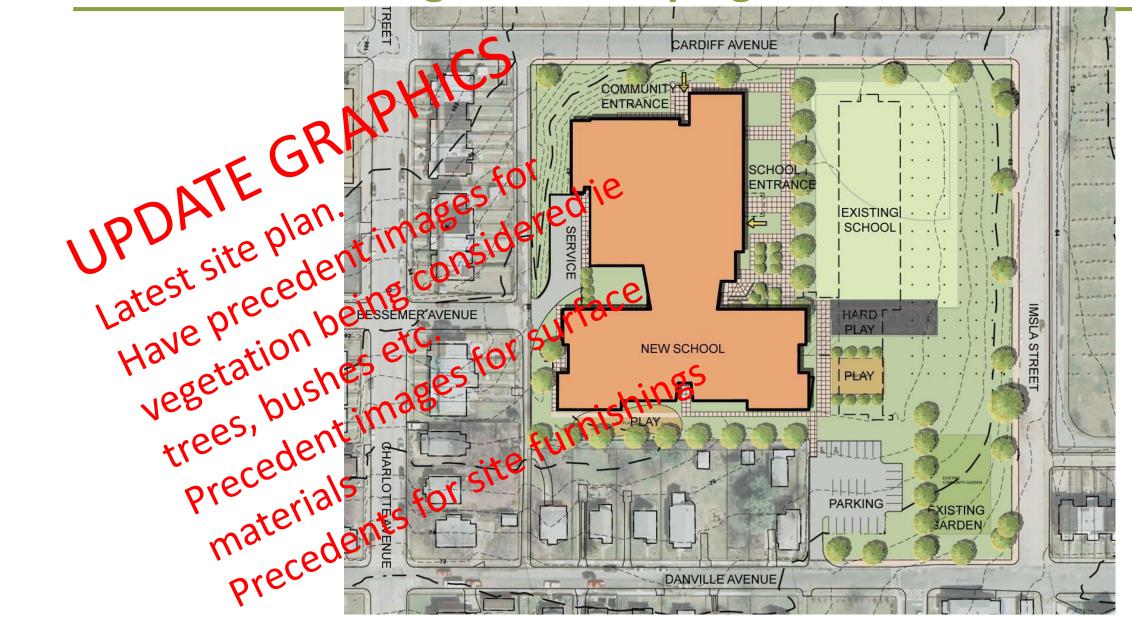




THANK YOU

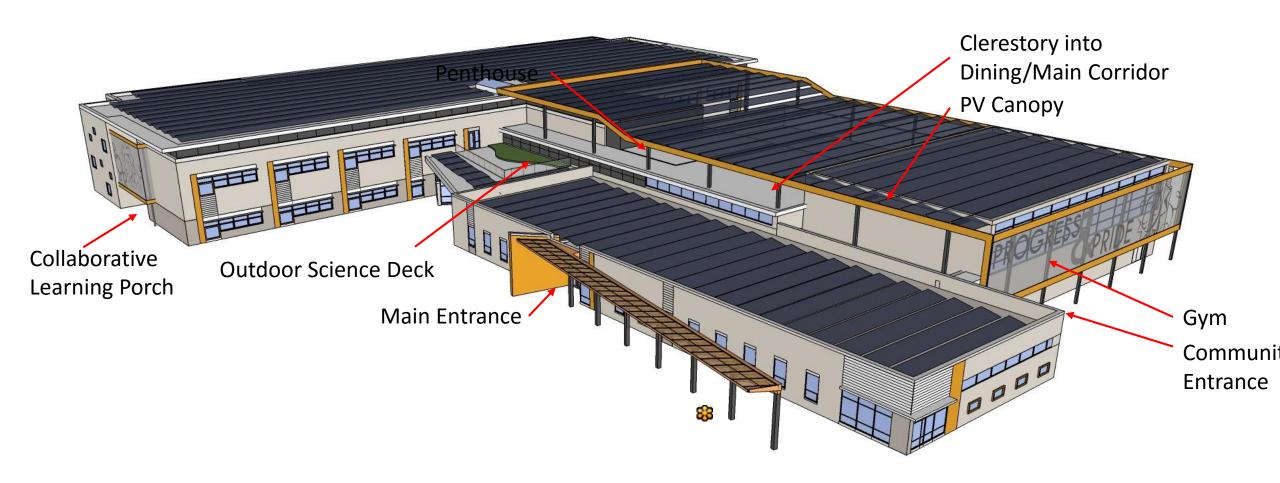
BALTIMORE CITY PUBLIC SCHOOLS

Holabird Site Design - Landscaping



Graceland Site – Landscaping HUDSON STREET UPDATE GRADIAN.

Latest site plan. CONSTRUCTION LINE DEMO RELOCATED Have precedent images MODULAR Asideredie GEOTHERMAI FIELDS PARKING vegetation being con PLAY trees, bushes etc. precedent images. SERVIC NEW NEW PLAZA materials SCHOOL precedentsfor SCHOOL COMMUNITY DROP OFF O'DONNELL STREET



GREEN STRATEGIES

- Protect natural habitats by planting native plants with an outdoor teaching area
- Design a compact school that allows more space for trees, fields, and reduces the impact on the natural environment.
- Using energy efficient heating and cooling systems
- Reduce storm water runoff and pollution
- Aim for a water savings through the use of water-conserving fixtures such as dual flush toilets and low flow faucets.

- Improve productivity and health of occupants through access to daylight and views
- Using LED lighting
- Implement a green housekeeping plan
- Provide lighting and thermal controls
- Use a geothermal system for heating and cooling
- Use the school as a teaching tool